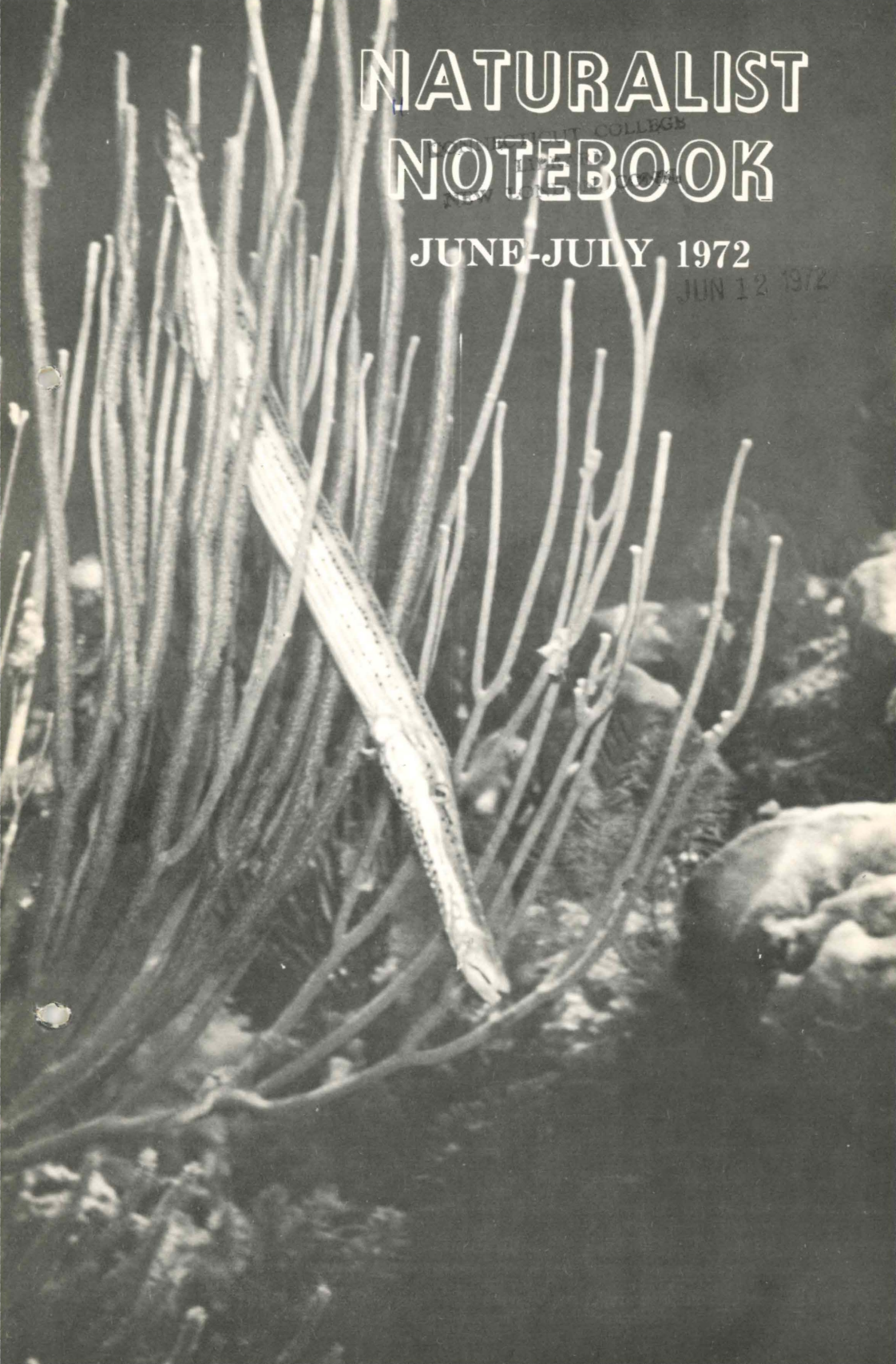
NATURALIST NOTEBOOK

JUNE-JULY 1972



NATURALIST NOTEBOOK

JUNE-JULY 1972 VOLUME VIII NO. 6

THAMES SCIENCE CENTER, INC.
GALLOWS LANE
NEW LONDON, CONNECTICUT 06320

FRONT COVER:

LYING IN WAIT—Trumpetfish on reef
Photo by National Audubon Society

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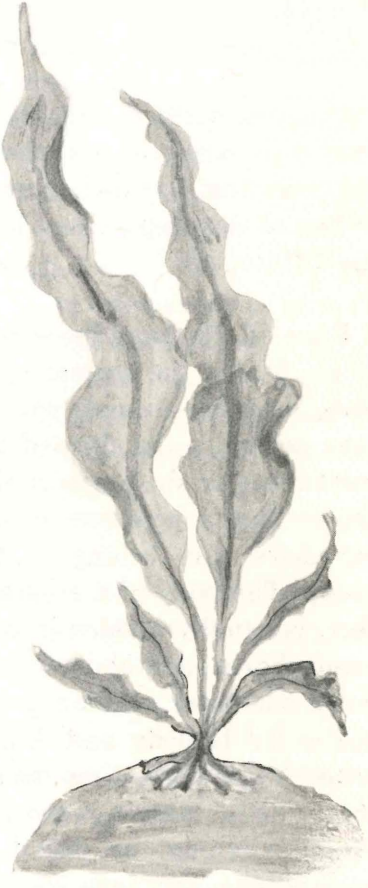
JUNE AND JULY— MONTHS FOR THE SHORE

As the warm salubrious days of spring give way to the heat and sultry brightness of summer, one's thoughts turn instinctively to cooler spots, and most naturally the areas lying along the shore laved by tidewater come to mind.

The ocean in all probability was the place which saw the early stages of man's development. It is too bad that we have not treated this nurturing body with the respect it should have. Thor Heyerdahl, making his voyage in the reedship *Ra*, discovered oil blobs coating the surface in mid-ocean—an indication that the Atlantic is polluted in its entirety. Oil spills such as the ones we are only too familiar with in this area add constantly to the burden throwing equilibrium too far in the direction of disorder. One's trip to the shore rarely finds water undecorated by bobbing cans, floating plastic cups, or similar distasteful objects (to say nothing of sewage). The species living along the shore or in coastal waters are diminishing in number and variety, it is reported.

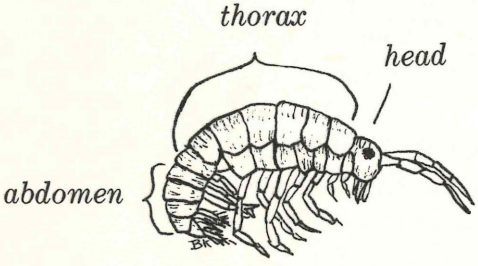


Winged Kelp (Alaria)

Yet even in the face of all these dire things, a day near the salt water when one can inhale the tangy air, feast one's eyes on the constantly moving and changing waves, dream a little while mentally travelling down the vistas the open water provides, can be a rare treat. It is hard to be downcast (even plagued by all the problems we face today) when one can, even for a brief time, get close to the water and relax. Try it—you'll like it! And perhaps the articles in this issue will give you some new ideas for your next visit to the shore.

AMPHIPOD—ISOPOD???

Text and Illustrations
by Barbara Kashanski



Beach Flea—Amphipod

It is the intent of this article to help clarify for those of you who have discovered them at the beach a confusing group of little jumping, crawling, burrowing, swimming members of marine life by the names of Amphipods and Isopods. Who's who, and how do you tell the difference?

First of all, Amphipods and Isopods belong to the same division or phylum of the animal kingdom as the insects. They are arthropods, meaning animals with jointed legs. Further classifying them, they belong to the class of crustaceans, which tells us they have a hard crust or shell (external skeleton) which is shed as the animal grows and a new one is formed. Shrimps, lobsters, crabs, and barnacles also belong to the crustacean group. The body of a crustacean (as an insect) is usually divided into three sections: head, thorax, and abdomen. To break them down one more division, Isopods belong to the order Isopoda and Amphipods to the order Amphipoda. Now we know that both these little marine animals can, in the broad meaning, be called arthropods or crustaceans, but once we get down to the order, we need to know the difference between the two groups.

A species of Isopod
found on seaweed "stems"

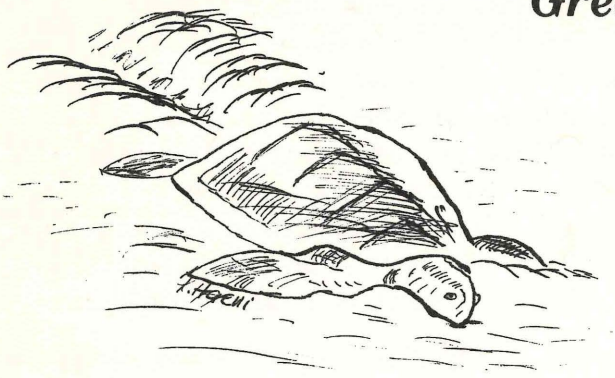
Amphipods are the most familiar of the two groups. Beach fleas or sandhoppers are Amphipods. Have you ever noticed that beach fleas are flattened sideways? Have you ever noticed how many legs they have? They have jointed legs for walking, swimming, and jumping. The sandhopper or beach flea lives in the sand just above the high water mark or can be found under clumps of seaweed left on the beach by the tide. There are also many other species of Amphipods to be found at the beach which are similar in appearance to the familiar sandhopper. These can be found in tidal pools, on seaweed, rocks, or in beds of mussels. Many of them skim around on their sides, which immediately indicates their sideways flattened bodies.

Shape is important because Isopods are flattened just the opposite way—from top to bottom or dorsoventrally—as though they'd been stepped on. Isopods usually have seven pairs of legs that are about equal size. Hence its name: *iso* means "equal," *pod* means "leg" or "foot." Amphipods have legs of unequal length. Perhaps the most familiar Isopod is one we find not at the beach but around our yards or woodlands under boards, logs, or leaves—the common sow bug. There are many Isopods, though, that live along the shore. They are harder to see than Amphipods because they "mimic" their surroundings. If they are on brown seaweed (algae), they are brown; if on red, their color is red: their color depends on the seaweed on which they live. Also, they arrange themselves so that their flattened body fits closely in line with the seaweed, which makes it very difficult to see them unless they move.

Some species of Isopod do a great deal of damage to pilings by making tunnels in the wood. If you ever see a piling with an hourglass figure at tide level, it is a pretty sure sign that the surface of that piling is full of the burrows of an Isopod. Some Isopods are parasitic and can be found on the skin, gills, and mouth of fishes. Both Amphipods and Isopods are an important link in the food chain at the shore—both in larval and adult form.

If you are not familiar with these two abundant forms of marine life, take a closer look next time you are at the beach. See if you can tell who's who—Amphipod or Isopod.

The Navigation of the Green Sea Turtle



Text and Illustration by Kathie Haeni

One of the stubborn puzzles of animal behavior is the ability of some animals to travel regularly to remote oceanic islands. The best known migrators are the birds; recently, however, the green turtle *(Chelonia mydas)* has given evidence of being a keen navigator.

The evidence that green turtles can find their way to remote islands is provided by female green turtles that normally inhabit feeding grounds along the coast of Brazil. It appears that once every two or three years the turtles swim all the way to Ascension Island —a "target" five miles wide and 1,400 miles away—to lay their eggs. They seem to have evolved the capacity to hold a true course across hundreds of miles of sea, using only animal senses as instruments of navigation.

Green turtles nest only in places where the average temperature of the surface water during the coldest month of the year is above 68 degrees F.

Once the hatchlings leave the beach, the males remain at sea for the rest of their lives. The females come ashore only to nest, and they do so after dark. They always return to the same general nesting area and often to the same narrow section of beach.

The green turtle is one of the few reptiles that are known to reproduce at intervals of more than a year. The time of year at which the nesting season begins and the duration of the season vary from one region to another. Mating takes place at the nesting ground and nowhere else. Either the males accompany the females to the

nesting grounds or they make an exactly timed rendezvous with them there. As soon as the tracks of nesting turtles appear on the shore the animals can be seen at sea, courting, fighting, and mating. Because these activities are mostly out of sight, little is known about them.

Mating must take place after at least some of the female's eggs have formed shells. Therefore, it seems unlikely that any of the eggs of the current season are fertilized as a result of current mating. The encounter probably serves to fertilize eggs for the next nesting season, two or three years ahead.

The female goes ashore from three to seven times to deposit clutches of eggs in the sand. It takes her about 12 days to lay 100 or so eggs. The incubation period is about 57 days. When the young green turtles hatch and emerge from the nest, they always set off on a direct course for the sea, even when it is hidden by dunes or other objects. Experiments show that this orientation is an innate response to some quality of light over open matter. It is clear that this is not a "compass-like" sense in the young. However, since the adults navigate over long distances, they must have some kind of compass sense. This sense does not come into operation until the "light-finding" sense fails. The "sea-finding" drive is not lost even when turtles are kept away from the water for as long as a year after hatching. Also, both capacities are present in the mature female; that is, the "compass" sense must guide her from the feeding ground to nesting beach and the "sea-finding" drive directs her back to the ocean.

The first clear evidence of periodic long-range migrations came from a tagging program. Recent studies suggest that the turtles are not random wanderers but true migrants—following a fixed travel route.

The capacity for open-sea orientation is the ultimate puzzle in the study of animal navigation. There are three inherent aids to navigation: a "clock sense," a "map sense," and a "compass sense." Very little is known about the nonvisual phenomena associated with the presence or direction of an island, nor is anyone sure about what a green turtle can taste, smell, or hear. Hence, the need for improved and further studies is evident.

NATURE JAUNT TO THE CONNECTICUT ARBORETUM

by Stephan Syz

May and June are nesting and breeding months for most of our birds. This year, for the eighth time since 1953, a breeding bird census will be taken in the Connecticut Arboretum Natural Area.

In 1953 the Natural Area consisted of a group of open fields to the west and oak and hemlock forests in the east. Certain bird species have been distinctive of each of these habitats. The yellowthroat, goldfinch, and white-eyed vireo were abundant in the field; while the red-eyed vireo, oven bird, and black-and-white warbler were characteristic of the forest.

As the years have gone by, the trees and shrubs which were just seedlings in the fields originally have grown up. The oak and hemlock forest has also grown taller, and some previously abundant shrubs in the understory have been reduced by an increasingly dense shade. All of the changes have altered the available habitats for nesting.

This spring we will be making 14 dawn and dusk trips through the Natural Area. The census taker will have a clip board on which will be maps of the Arboretum—one for each bird species expected to be found. On hearing a bird singing, a mark will be made on a map and, if the song is heard at the same location on successive days, a cluster of dots will begin to form at that location on the map. At the end of the census, each cluster will be interpreted as representing the male of a breeding pair singing his proclamation of territory.

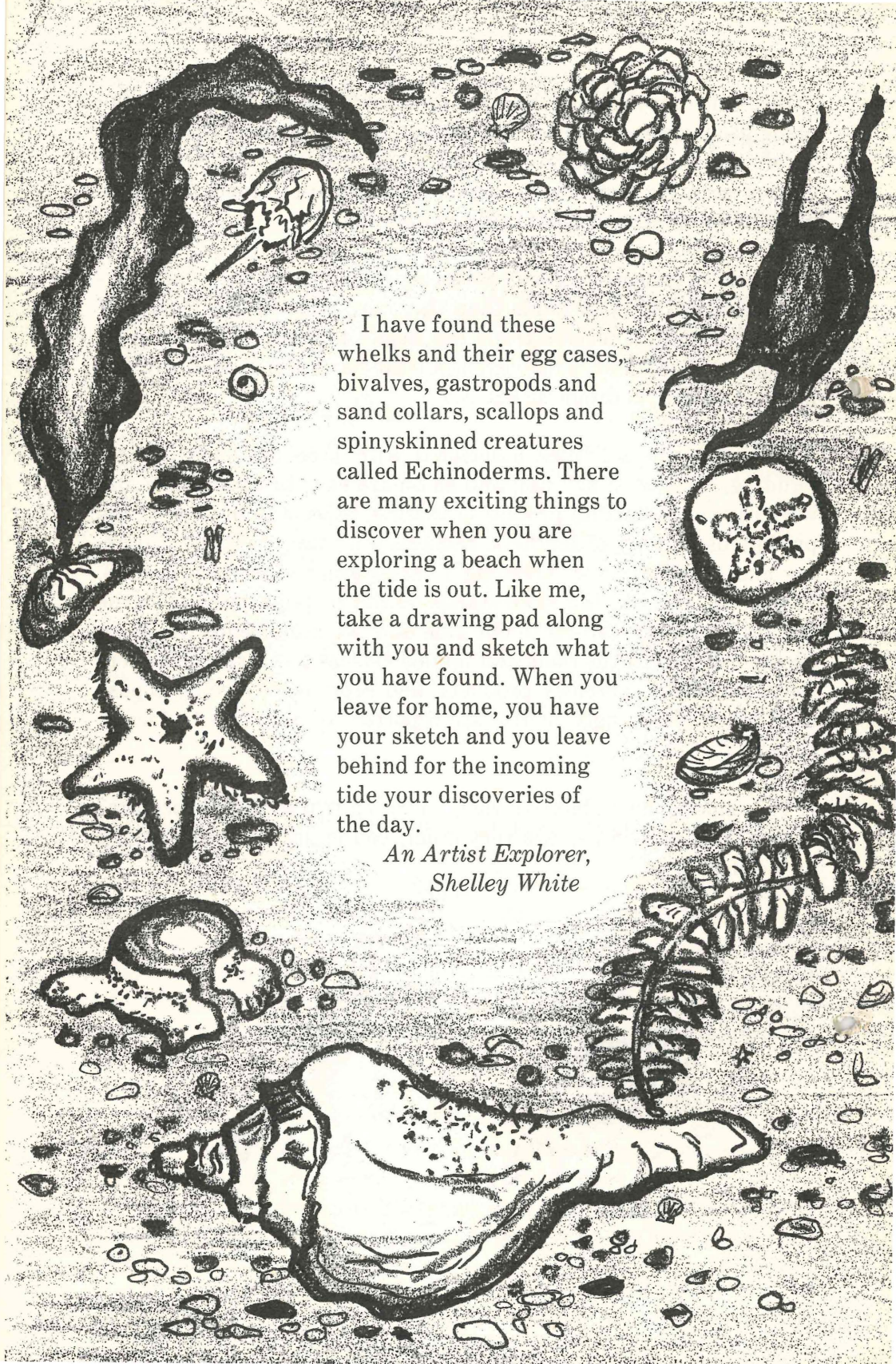
From these censuses it is hoped that many questions will be answered, such as: Does the changing vegetation cause changes in the bird population? Are some species breeding here that never did before and are others leaving? and How do spring temperatures, storms, and the ever-encroaching city and highways affect the breeding populations?

Birds do have special habitat requirements. In the fields, the plant life is quite unvaried and so are the bird species living there. As shrubs and trees begin to take over an abandoned field, the vegetation becomes more diverse, more habitats are formed, and more and different types of birds begin to move in.

The seven censuses already taken show that there were once fewer species in the open fields than there are now. In other parts of the Arboretum, a reverse trend has begun to occur. As trees grow straight and tall and shrubs around their bases are shaded out, the number of birds is dropping again.

Although the activities associated with breeding such as nest building, territorial defense, and so on are easy to understand and well known, the actual process of mating, especially in view of the prodigious number of feathers, remains a mystery to many. Courting and copulation (or "treading") varies greatly between species. In general, though, the male stands on the female's back; then the female bends her tail up to one side and the male bends his down on the other until the male and female cloacas (posterior chambers receiving feces, excretory products, and reproductive cells) oppose each other. Amazingly, swifts are reported to mate face to face in flight.

This month, how about an early morning trip to the Arboretum? If you wish, and if you are very quiet, you might even come along on a census trip.



I have found these whelks and their egg cases, bivalves, gastropods and sand collars, scallops and spinyskinned creatures called Echinoderms. There are many exciting things to discover when you are exploring a beach when the tide is out. Like me, take a drawing pad along with you and sketch what you have found. When you leave for home, you have your sketch and you leave behind for the incoming tide your discoveries of the day.

An Artist Explorer,
Shelley White

SCAVENGERS OF THE AIR

Text by Frank R. Haeni
Illustration by Kathie Haeni

The herring gull, *Larus argentatus*, is the commonest gull and is probably the most numerous of all birds found along our shorelines and marshes. It is found along both the Atlantic and Pacific coasts as well as the coast of northern Europe and is said to frequent the entire northern hemisphere, wintering south as far as the West Indies and the coast of North Africa. Inland the birds range as far west as Wisconsin and Minnesota.

The common name of this gull is derived from its habit of following schools of herring and other fish. This action often reveals the whereabouts of the fish to fishermen.

Herring gulls commonly construct their nests on the ground and line them with grasses, mosses, and sea weed. In locations where the birds are consistently robbed of their eggs, they will build their nests in trees, sometimes 50 feet or more from the ground. Three to five eggs are laid, the color varying from light sky blue to light brown and cinnamon. They are also colored with various splotches of browns, blacks, and lilac. The varied colors aid in camouflaging the eggs within the nest.

The adult gulls have a red ring around the lower mandible. This red mark plays a very important role during the raising of the young. The young gulls peck at the red ring of the adult. When this happens, the adult regurgitates food and passes it on to the young chicks. It is interesting to note that the adult gull will not feed the chicks unless they peck at the mark.

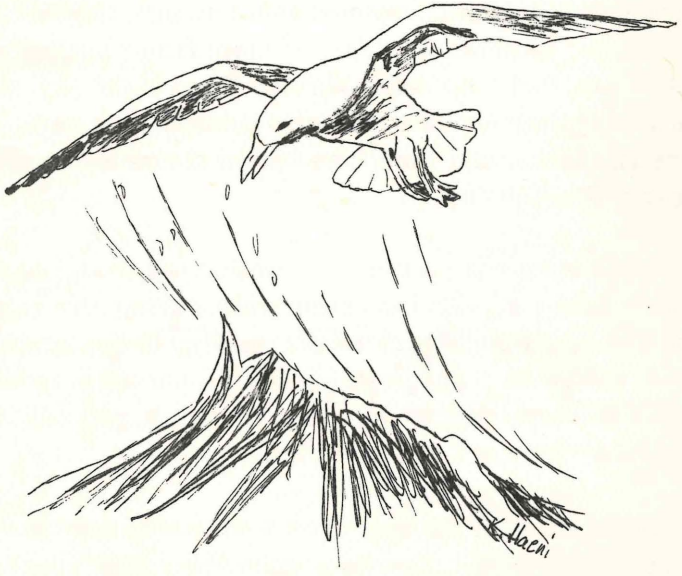
The gull's habit of feeding upon man's effluence is well known. Herring gulls are also predators upon their own kind. A friend of mine was banding young gulls on Martha's Vineyard when she came

across a strange-looking gull. From a distance something looked peculiar about the bird's head. Upon capturing the bird, she found a foot sticking out of its mouth. She pulled on the foot and found that it was attached to the remains of a young gull. This explains why many of the young chicks that are banded are never found. Herring gulls can also be seen dropping various species of molluscs on rocks or roadways to break open the shells.

Another interesting feeding habit of herring gulls is that they feed upon worms, grubs, and beetles in plowed fields. As a youngster in south-central Wisconsin, I observed large flocks of gulls that would appear out of "nowhere" when we were plowing the fields. They would follow behind the tractor and plow as the fresh earth was overturned.

Recent records from the bird banding office show that the record for longevity belongs to a herring gull that lived to be over 35 years old.

The herring gulls do what man is too lazy to do: clean up his own sewage and waste. Hopefully, someday the gulls will no longer be man's garbagemen of the air.



FROM THE DIRECTOR . . .

by Robert S. Treat

For brick and mortar breed filth and crime,
With a pulse of evil that throbs and beats;
And men are withered before their prime
By the curse paved in with the lanes and streets.

And lungs are poisoned and shoulders bowed,
In the smothering reek of mill and mine;
And death stalks in on the struggling crowd—
But he shuns the shadow of oak and pine.

—Nessmuk

A bit strong, perhaps, but George W. Sears, known as "Nessmuk," offered this view of the effects of the city in the preface to his classic book on outdoor life written in 1920. The message is clear enough and one which is even more relevant today as our cities choke with polluted air and congested living. More and more Americans are dissatisfied with urban life and a loss of contact with nature. In seeking to be reunited, however, a strange thing occurs. Karen Craighead, writing for the May issue of *The National Geographic* in an article entitled "A Walk Through The Wilderness," puts it this way:

Despite my earlier apprehension, I enjoy the sight. It makes me feel a growing oneness with this wild and unspoiled land (Yellowstone National Park).

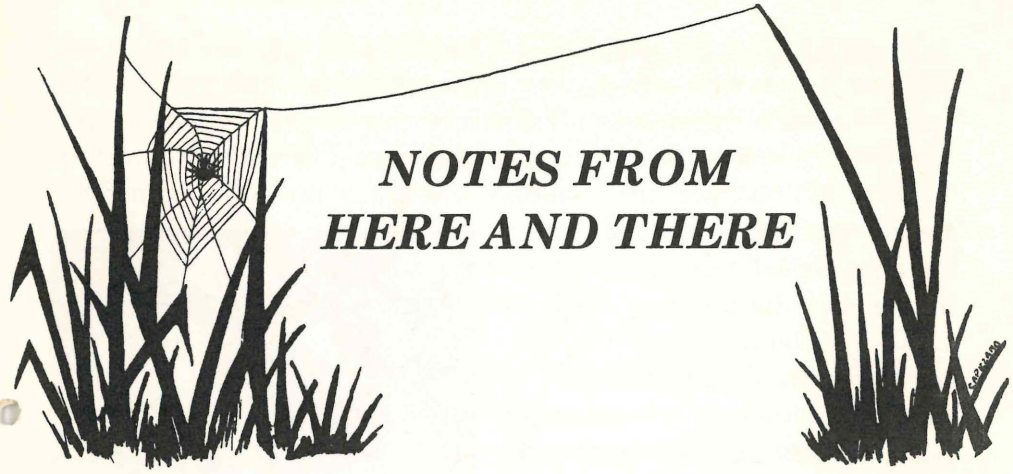
We shall meet few people in the vast area of backcountry we must circle: a handful of other backpackers, perhaps a dozen horseback trains. Yet there are people, thousands of them. Miles away, locked in traffic jams in the "civilized" part of the park, they thrill to glimpses of bear, moose, and elk and marvel at Old Faithful's eruptions.

This motorized cavalcade of humanity sees less than 5 percent of Yellowstone. Few have ever seen the rest; to do so one must walk.

"To do so, one must walk!" What is there about us that makes our living so comfort oriented, even while we camp? The goal almost seems to be to reproduce all the conveniences of modern living which we supposedly left behind—and these include refrigerators in the trailers, living rooms, trail bikes, and use of the washer-dryer—and then to compare our "home away from home" with the one at the next "campsite." How close to nature are we really getting, and do we really enjoy our return as much as we could?

This year's Thames Science Center Nature Festival attempted to show that fuller enjoyment and a more satisfying experience could be gained through paying more attention to the living world around us and less to the portable TV. Workshops were given in backpacking, learning how to identify and gather edible wild plants, and how to cook efficiently and tastefully in the woods. We took a look at birds, at the stones while you walk, and at the stars while you rest at night. For the beach people, instead of roasting all day in the boiling sun trying to get skin cancer, we suggested the fun of discovering life along the shore. Through the Marine Science Boat Trips, we introduced many people to plankton, to dredging for life beneath the sea, and to some understanding of the fantastic wealth of sea life found just off the shore in the Sound.

When you plan your trip this summer, why not take along Colin Fletcher's *The Complete Walker*, Frances Theodora Parsons' *How to Know the Ferns*, the Golden Press guide to *Trees of North America*, or, perhaps for the challenge, Euell Gibbons' *Stalking the Wild Asparagus?* When you get to your destination, get out and *walk* into the woods away from the old camper and the security of its luxuries; and you may say with Karen Craighead, "Yellowstone, we have learned, challenges the body, stimulates the mind, fulfills the soul. It is a dynamic but intricately fragile world."



NOTES FROM HERE AND THERE

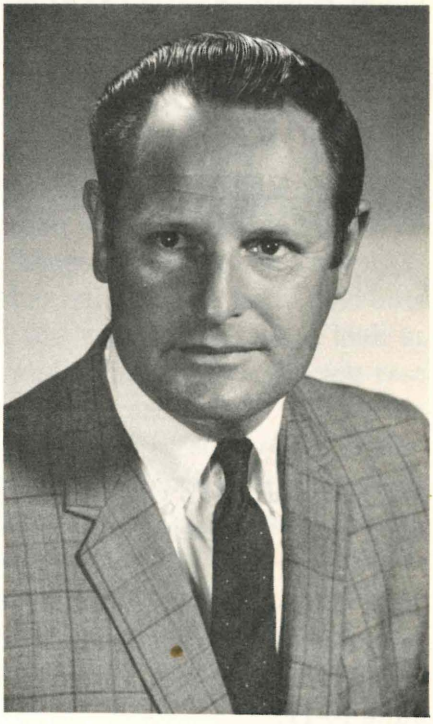
FRIEND OF THE CENTER: Mrs. Elizabeth C. Noyes has renewed her Friend membership.

THE DICK BERTEL SHOW ON WTIC-TV, CHANNEL 3, taped interviews with Bob Treat, Frank Haeni, and Steve Syz of the Science Center on three aspects of the Nature Festival at the Center on June 10-11.

THE ENVIRONMENTAL STUDY DAY CAMP will be staffed this summer by Frank and Kathie Haeni. The first session will be held at the Peace Sanctuary Nature Preserve in Mystic from June 26 to July 7. Registrations should be received at the Center no later than June 15. For information, telephone 442-0391.

AN ENVIRONMENTAL QUALITY SEMINAR from September 12 to November 21, 1972, is being offered by the Norwich Free Academy under the auspices of a grant from the Noyes Foundation. Meeting on Tuesday evenings from 7 to 9 p.m., a series of lectures, discussions, and field trips dealing with a broad spectrum of pressing environmental issues will be presented. Dr. William A. Niering will present one of the lectures, and the Science Center will lead one of the field trips. For information, contact the Center or Eleanor B. Read at the Academy.

BOB TREAT IS LEAVING AS EXECUTIVE DIRECTOR of the Science Center to accept an appointment as Chairman of the History and Social Science Department of the Northfield Mount Hermon School in East Northfield, Massachusetts, effective September first. Mrs. Treat will be the School Librarian. Since Bob joined the Center in 1970, it has seen many changes, including the dedication of the new building on Gallows Lane in November, 1970. The Center's programs have continued to develop to include an expanded Nature Festival, Weekday Workshops, Junior Curators, and a Young Naturalist's Program. A Field Ecology Program for high school students was begun in 1971 offering field expeditions to the White Mountains and a marine expedition to Long Island Sound. During Bob's directorship, bird banding demonstrations and various adult-oriented activities have also been inaugurated; and both membership and volunteer services have grown significantly.



THE INLAND WETLANDS AND WATERCOURSES ACT contains a strong statement of purpose and defines wetlands as including land which consists of soil types designated as poorly drained, very poorly drained, alluvial, and flood plain. Watercourses include rivers, streams, brooks, waterways, ponds, marshes, swamps, bogs, and other bodies of water, natural or artificial, public or private. Connecticut municipalities will have until January 1, 1974, to regulate activities on inland wetlands and watercourses consistent with regulations promulgated by the Commissioner of Environmental Protection. If municipalities fail to exercise regulatory authority by January 1, 1974, the Commissioner will take action to protect inland wetlands and watercourses. What is your municipality doing? Find out.

IF YOU ARE NOT PART OF THE SOLUTION,
YOU ARE PART OF THE POLLUTION!

FIELD NOTES—APRIL 1-MAY 6

CONTRIBUTORS: Please send or call in your field notes to Frank Haeni at the Center by the last day of the month. We are planning to publish reports by the calendar month rather than the staggered dates formerly followed. This should be more convenient for future reference.

The highlight of this period was a PILEATED WOODPECKER at the Peace Sanctuary from April 8-14.

New London, Waterford: Two GREATER YELLOWLEGS were seen April 2 near the corner of Wayhill Road and Route 85. On April 6 birders saw a pair of BLUE-WINGED TEAL and 3 BONAPARTE'S GULLS at Harkness Park. Fifty migrating SNOW GEESE stopped for a rest in Waterford April 9. Also seen that day were two TURKEY VULTURES. A lone SHOVELLER DUCK was at Harkness Park from April 9-17. A young GREAT HORNED OWL was found in its nest on April 12 in Waterford. The owl eventually departed from the nest. A late WHITE-WINGED CROSSBILL was found in Waterford April 17. April 19 produced an early PINE WARBLER. A CAROLINA WREN was spotted by birders in Waterford April 22, where 3 ROUGH-WINGED SWALLOWS were seen April 23. In Mitchell Woods a single RED-BREASTED NUTHATCH was seen April 24. WHITE TRILLIUMS were blossoming in Quaker Hill April 28. Also in Quaker Hill was a ROSE-BREASTED GROSBEAK May 1. Twenty very late EVENING GROSBEAKS were observed at a feeder in Waterford May 3. Birding May 5 produced 3 MYRTLE WARBLERS in Quaker Hill. Birding in the Connecticut Arboretum May 6 produced the following migrating spring WARBLERS: TENNESSEE, MYRTLE, PARULA, BLUE-WINGED, PALM, BLACK-THROATED BLUE and BLACK-AND-WHITE.

Niantic, the Lymes, Connecticut River: Two RED-BREASTED NUTHATCHES were fund April 8 in East Lyme. On April 14 a LOUISIANA HERON was observed near Route 9 in Chester. Four GREEN-WINGED TEAL were at Rocky Neck Park April 12. Two BALTIMORE ORIOLES and one BLACK-AND-WHITE WARBLER were seen in Niantic May 4. A rare BALD EAGLE was observed for several hours May 4 along the Connecticut River in Otter Cove, Old Saybrook.

Mystic, Stonington: Ninety DOUBLE-CRESTED CORMORANTS were seen on the Mystic River April 8. Thirty remained for the remainder of the month. Sixteen late EVENING GROSBEAKS and four late PINE SISKINS were seen in North Stonington April 27. In addition to the rare PILEATED WOODPECKER at the Peace Sanctuary, a GRAY-CHEEKED THRUSH and an OVEN BIRD were seen April 30, and on May 1 two SCARLET TANAGERS were found. A MUTE SWAN can be seen nesting on a jetty adjacent to the Sanctuary.

Groton, Ledyard, Preston: An early BLACK-AND-WHITE WARBLER was seen at Avery Pond in Preston. On April 16 a RED-CROWNED KINGLET and a GOLDEN-CROWNED KINGLET were seen in Ledyard, where two ORCHARD ORIOLES, a CHIPPING SPARROW, and a YELLOW-BELLIED SAPSUCKER were observed April 19. Additional Ledyard observations include the discovery of a MOURNING DOVE nest with two eggs and two pairs of nesting WOOD DUCKS with 12 eggs in each nest.

Contributors: B. Barnes, C. Chapman, M. and T. DeGange, F. Eastman, Dr. & Mrs. M. Grant, F. and K. Haeni, C. Klipp, J. Lang, Mrs. Lombardino, E. Noyes, B. Ryan, M. L. Treat.

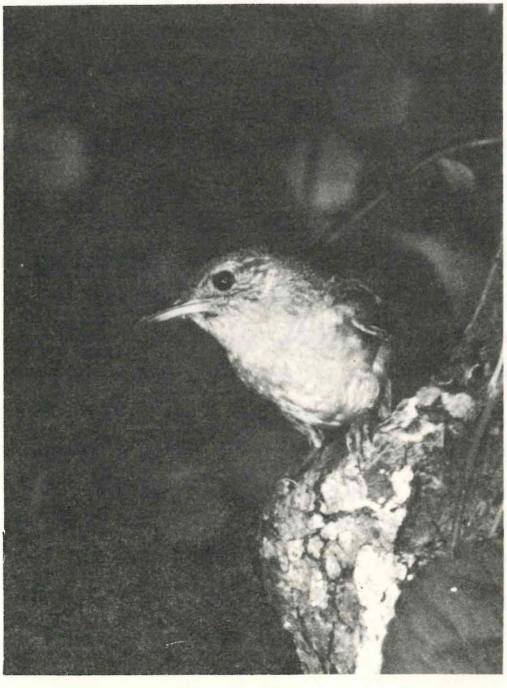
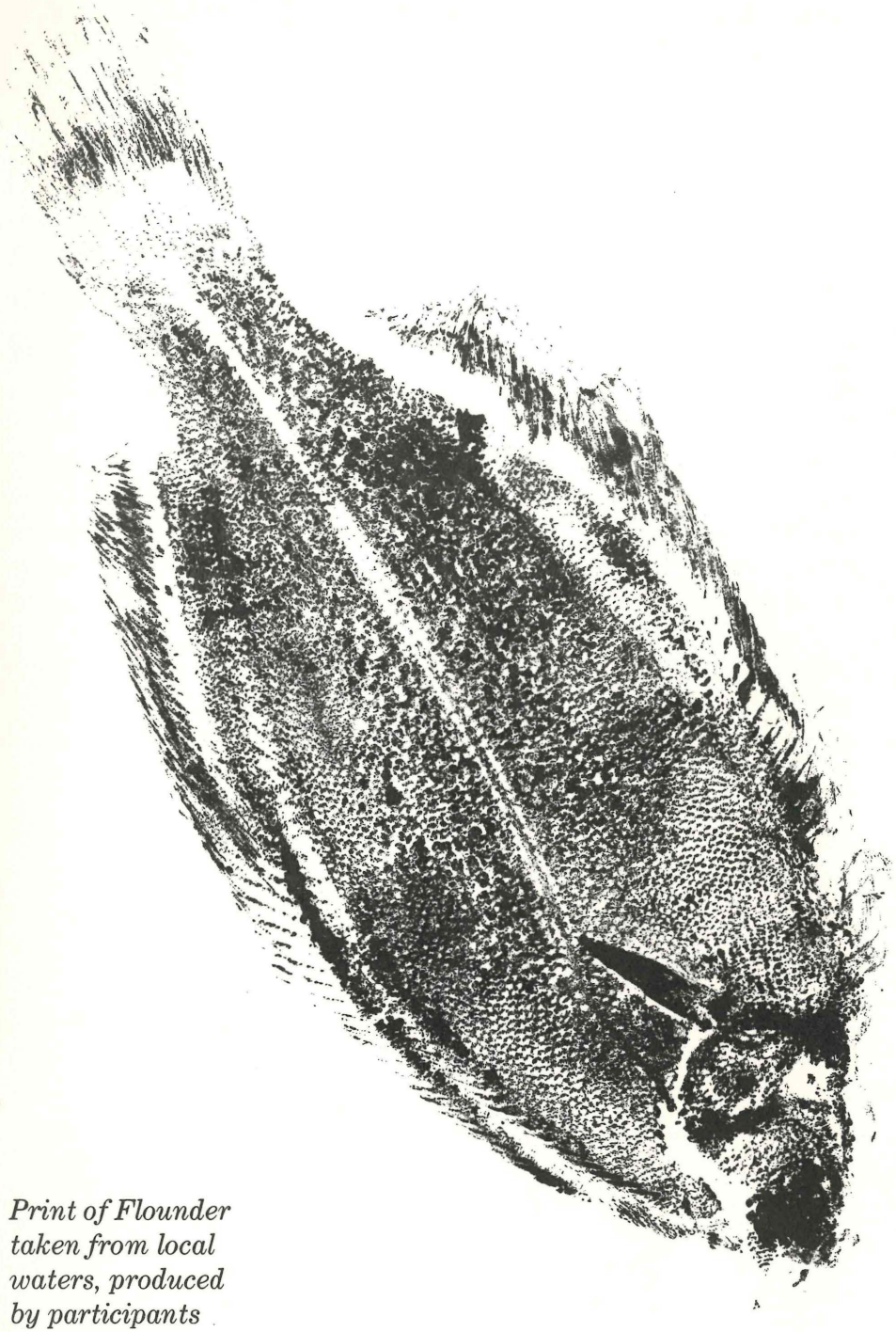


Photo by T. DeGange



Print of Flounder taken from local waters, produced by participants in one of the Center Weekday Workshops

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ADDRESS CORRECTION REQUESTED

We Need Your Active Membership and Support

THAMES SCIENCE CENTER
GALLOWS LANE, NEW LONDON, CONN. 06320
Phone: 443-4295

Annual dues: 12 months from _____

Name _____

Street _____ City _____

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CLASSES OF MEMBERSHIP

- ☐ Annual $7 (each adult member of family)
- ☐ Family $12
- ☐ Supporting $25
- ☐ Friend of the Center $50
- ☐ Organization $15
- ☐ Junior (under 16) $4
- ☐ A special gift toward support of the Science Center effort is included $ _____

Please make checks payable to The Thames Science Center
Contributions are tax deductible